REMARKS

This application was originally filed on 21 December 2001 with thirty one claims, four of which were written in independent form. Claims 25-29 have been allowed. Claims 1, 14, 18, 19, 30, and 31 have been amended to clarify what is being claimed. The amendments to Claims 1, 14, 18, 30, and 31 should not be deemed narrowing amendments. The amendment to Claim 19 is to clarify what is being claimed.

The drawings were objected to as failing to comply with 37 C.F.R. 1.84(p)(5). The drawings and the specification have been amended to overcome this objection. Specifically, the paragraph beginning on line 4 of page 9 now clearly states it is referring to Figure 1. Reference numerals for elements 104 and 106 have been added to Figure 1. With respect to Figure 2, since elements 104, 106, and 116 are described in reference to Figure 1, and since like elements are required to have the same reference numerals in each figure in which they are shown, it is believed that no further description is necessary as a result of their use in Figure 2. Should the amendments to Figure 1 be acceptable to the Examiner, formal drawings incorporating this change will be submitted prior to issue of the present application.

The Abstract of the Disclosure was objected to for exceeding 150 words. The applicant has amended the Abstract of the Disclosure to be less than 150 words.

Claims 14 and 18 were objected to for various formalities. The applicant thanks the Examiner for pointing out these uncertainties in the claims and has amended Claims 14 and 18 to overcome this objection.

Claim 1 was rejected under 35 U.S.C. § 112, first and second paragraph, for the use of the work "switch." The applicant has amended the specification to clarify that pass transistor 306 is one embodiment of the switch described in the claims. Support for this amendment is found in the original abstract and claims.

Claim 1 was rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,444,566 to Gale et al. ("Gale"). The applicant respectfully disagrees. Amended Claim 1 clarifies the switch is "associated with each said at least one member." Gale does not show, teach, or suggest a switch "associated with each said member" as recited by amended Claim 1.

Claim 14 was rejected under 35 U.S.C. § 102(b) as being anticipated by Gale. The

applicant respectfully disagrees. Amended Claim 14 recites "a means associated with each said at least one deflectable member for selectively connecting said deflectable member to a voltage potential." Gale does not show, teach, or suggest "a means associated with each said at least one deflectable member" as recited by amended Claim 14.

Claim 19 was rejected under 35 U.S.C. § 102(b) as being anticipated by Gale. The applicant respectfully disagrees. Amended Claim 19 recites "electrically floating said deflectable member such that said reset signal does not reposition said electrically floating deflectable member." Gale does not show, teach, or suggest "electrically floating said deflectable member such that said reset signal does not reposition said electrically floating deflectable member" as recited by amended Claim 19.

Claims 2, 5, 7-9, 15, 19-24, 30, and 31 were rejected under 35 U.S.C. § 102(b) as being anticipated by Gale. Claims 3, 4, 10, 12, 13, and 17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Gale in view of U.S. Patent No. 5,285,407 to Gale et al. ("Gale '407"). The applicant respectfully disagrees. Claims 2, 5, 7-9, 15, 20-24, 30, and 31 depend from Claims 1, 14, 19, and 25 and should be deemed allowable for that reason and on their own merits. For the reasons argued above with respect to the base claims, Gale in view of Gale '407 does not show, teach, or suggest the recited elements of the base claim, much less the recited elements of the base claim in combination with the additional elements of the dependent claims. With respect to Claim 2, the Examiner has failed to suggest how the memory cell storing positional information drives the means of Figure 16 as required by the Examiner's interpretation of the base claim. With respect to Claim 7, the Examiner has failed to show how Gale's means of Figure 16 can inherently ground the mirror.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version With Markings To Show Changes Made."

In view of the amendments and the remarks presented herewith, it is believed that the claims currently in the application accord with the requirements of 35 U.S.C. § 112 and are allowable over the prior art of record. Therefore, it is urged that the pending claims are in condition for allowance. Reconsideration of the present application is respectfully requested.

Respectfully submitted,

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Version With Markings To Show Changes Made

In the specification:

Paragraph beginning at page 9, line 4 has been rewritten as follows:

The fabrication of the micromirror will be discussed in reference to Figure 1. A first layer of supports, typically called spacervias, is fabricated on the metal layer forming the bias electrodes 110 and mirror bias connections 112. These spacervias, which include both hinge support spacervias 116 and upper bias electrode spacervias 118, are typically formed by spinning a thin spacer layer over the bias electrodes 110 and mirror bias connections 112. This thin spacer layer is typically a 1 μm thick layer of positive photoresist. After the photoresist layer is deposited, it is exposed, patterned, and deep UV hardened to form holes in which the spacervias will be formed. This spacer layer and a thicker spacer layer used later in the fabrication process are often called sacrificial layers since they are used only as forms during the fabrication process and are removed from the device prior to device operation.

Paragraph beginning at page 11, line 3 has been rewritten as follows:

Figure 3 is a schematic representation of one element of a micromirror array illustrating the circuitry driving a micromirror. In Figure 3, data is written to the micromirror element through bit line 302. Word line 304 is active when the element is written to causing the switch, shown as pass transistor 306 to turn on and allowing the bit line driver to charge the memory capacitor 308. When a logic high signal is stored on the memory capacitor 308, the mirror transistor 310 is turned on grounding the mirror structure 312.

The Abstract of the Disclosure has been rewritten as follows:

A capacitively coupled microelectromechanical device comprising ~~and method of operation. The micromechanical device comprises~~: a semiconductor substrate; a member operable to deflect ~~about a torsion axis~~ to either of at least two states; and a switch ~~driven~~ for selectively connecting the member to a voltage signal. When a logic high signal is stored on ~~the~~ memory capacitor ~~308~~, ~~the~~ mirror transistor ~~310~~ is turned on, grounding the mirror structure ~~312~~.

When a logic low signal is stored on the memory capacitor ~~308~~, the mirror transistor ~~310~~ is turned off, allowing the mirror to float electrically. Mirrors that are tied to a voltage potential, which typically are grounded, are affected by a reset pulse and rotate away from their landed position. When the mirrors have rotated to the opposite side, a bias signal is applied to hold the repositioned mirror in place in the opposite state. Mirrors that electrically are floating do not experience the forces generated by the reset voltage and remain in their previous state. ~~The preceding abstract is submitted with the understanding that it only will be used to assist in determining, from a cursory inspection, the nature and gist of the technical disclosure as described in 37 C.F.R. § 1.72(b). In no case should this abstract be used for interpreting the scope of any patent claims.~~

In the claims:

Claims 1, 14, 18, 19, 30, and 31 have been amended as follows:

1. (amended) A micromechanical device comprising:

a semiconductor substrate;

at least one member operable to deflect about a torsion axis to either of at least two states;

a switch associated with each said at least one member ~~driven~~ for selectively connecting said member to a voltage signal.

14. (amended) A micromechanical device comprising:

at least one deflectable member, each deflectable member supported by a torsion hinge and spaced apart from a substrate;

at least two bias electrodes supported by said substrate, one on each side of an axis of said torsion hinge; and

a means associated with each said at least one deflectable member for selectively connecting said deflectable member to a voltage potential.

18. (amended) The micromechanical device of Claim 14, said means for selectively electrically connecting comprising: ~~a pass transistor.~~

a pass transistor; and

a capacitor, a first terminal of said capacitor connected to a gate terminal of said pass transistor and a second terminal of said capacitor connected to a ground potential.

19. (amended) A method of operating a micromechanical device, the method comprising:

~~selectively~~ grounding a deflectable member; ~~and~~

applying a reset signal to bias electrodes to reposition said selectively grounded deflectable member;

electrically floating said deflectable member such that said reset signal does not reposition said electrically floating deflectable member.

30. (amended) The method of Claim 24 ~~19~~, further comprising:

applying an initialization signal to said bias electrodes to force said deflectable members of said first and second groups to a known state.

31. (amended) The method of Claim 30, said applying an initialization signal to said bias electrodes to force said deflectable members of said first and second groups to a known state comprising:

applying a voltage signal to one of said bias electrodes and a ground signal to another one of said bias electrodes.